

# Integrated Water Quality and Aquatic Communities Protocol – Wadeable Streams

## Standard Operating Procedure (SOP) #20: Database

Draft Version 1.0

### Revision History Log:

| Previous Version | Revision Date | Author | Changes Made | Reason for Change | New Version |
|------------------|---------------|--------|--------------|-------------------|-------------|
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This SOP provides the details on the design and setup of the database that is to be used to enter, store, and organize data for this protocol. To learn how to use the database to enter data, see SOP #4: Data Entry.

### Database

There are a variety of databases that have been developed to store and manage stream data including NPSTORET, which is currently recommended by the NPS Water Resource Division. The Klamath Network looked at several of these databases, but we were unable to find a database that could meet the majority of the needs of our project. Therefore, we have developed a database using the Natural Resource Database Template (NRDT) developed by the National Park Service. The NRDT:

- Provides both a data interchange standard and a standard MS Access database core that allow flexibility in application design.
- Serves as a starting point for application development that can be extended as necessary to accommodate any inventory or monitoring field sampling protocol.
- Standardizes location and observation data to facilitate the integration of datasets.
- Acts as a design platform for developing database applications in MS Access, allowing users to enter, edit, display, summarize, and generate reports for inventory or monitoring datasets.
- Integrates with other I&M data management systems and data standards including the NPS Data Store, Geographic Information System (GIS) tools and data, the NPS GIS Committee Data Layers Standard, and the NPS Metadata Profile.

The NRDT Front-end Application Builder (FAB) is a Microsoft Access file that is intended to be used by developers of NRDT applications to create a front-end (user-interface) to an NRDT v.3.2 back-end (database). The FAB comes with many built-in features, including:

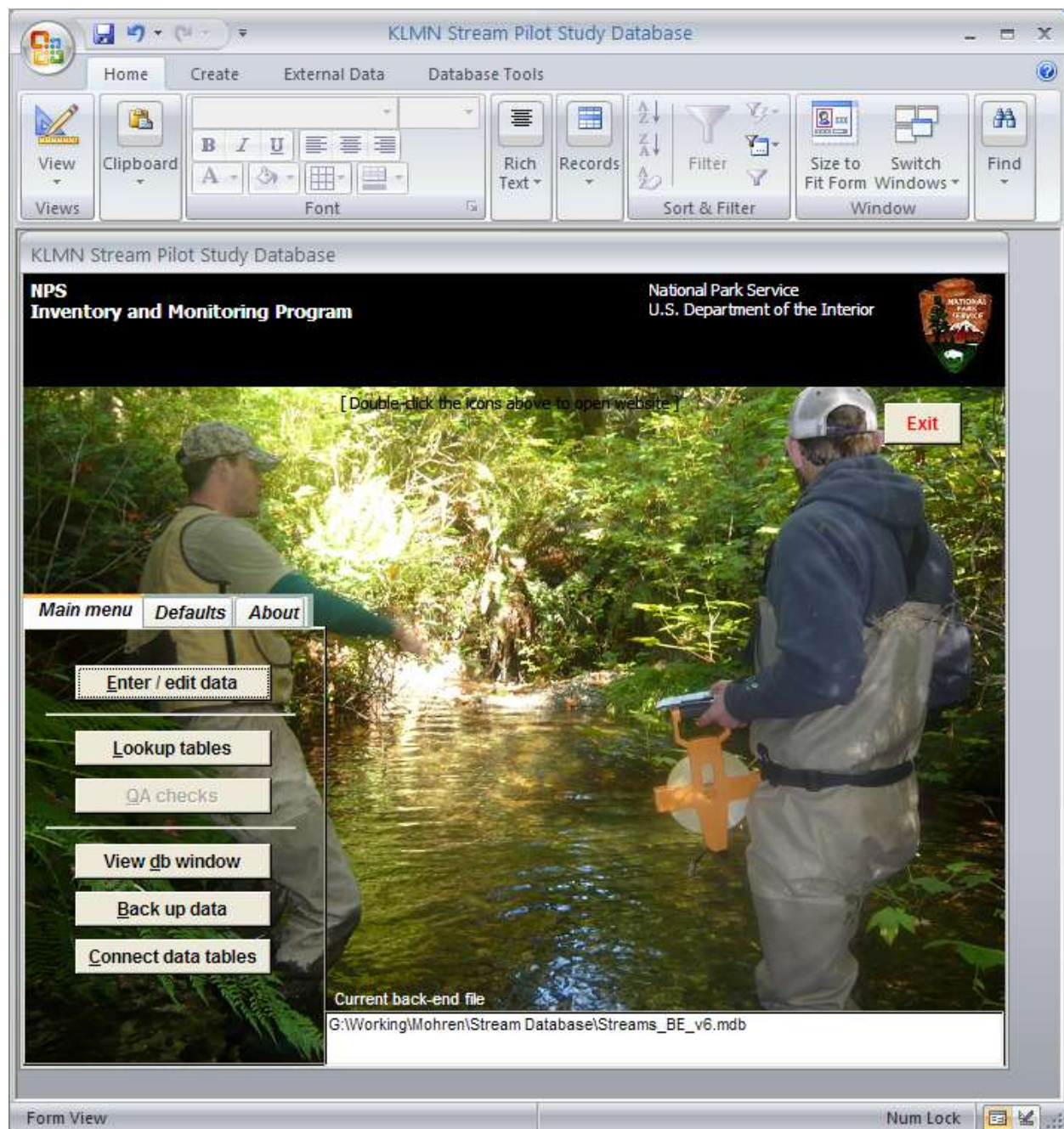
## SOP #20: Database (continued).

- table linking utility
- data backup
- compaction
- lookup table management
- main menu
- standardized data entry forms for core NRDT v.3.2 tables
- standardized data "gateway" form for retrieving records

### ***Master and Project Database***

The Klamath Network plans on maintaining a Master Stream Database which will house all the verified and validated data that are collected using this protocol (Figure 1). Members of the KLMN will have read-only access to this database and can use it to conduct data summaries and use the data to develop analysis and synthesis reports or publications. A project database will be provided to each crew at the beginning of the field season. Crews will use the project database (on a Tablet PC) to enter data collected at each monitoring site. After validation and verification procedures have been followed, this database will be used to create summaries and conduct data analysis for annual reports. At the end of the year, the data from the project database will be uploaded to the master database for long-term storage and future analysis.

## SOP #20: Database (continued).



**Figure 1.** Main screen of the KLMN Stream monitoring database.

### ***Preparing the Databases for Field Work***

*Updating Contact and Location Information:* Prior to starting the field work, the Data Manager should obtain a copy of the blank project database that was created at the end of last year, which should be located in the Stream Data subfolder of the Stream Monitoring folder. As discussed in SOP #1: Preparations, Equipment, and Safety, the Data Manager should obtain a GIS file of the sites that the Network plans on monitoring in the upcoming year and a list of contact information

## SOP #20: Database (continued).

for each person involved in the Stream monitoring effort. These data should be used to enter as much of the site and contact information into the project database as possible. To enter this information, the Data Manager should complete the following steps.

1. Click the “Enter / Edit Data” command button.
2. On the “Set application default values” form, use the drop down box in the “User” field to make sure names for each person involved in this project are on the list. If a person needs to be added, click the “New User” command button.
3. Enter the following fields for each person involved in the monitoring effort this year.
  - a. First Name
  - b. Last Name
  - c. Organization
  - d. Position / Title
  - e. Work Phone Number
  - f. Email Address
  - g. Address Type
  - h. Address, City, State, and Zip
  - I. Country
4. Once you have completed entering the data for each person, click the “Close” button.
5. Click the “OK” button on the “Set application default values” form.
6. On the “Sample Data Gateway” form, click “Add a New Record.”
7. On the “Data Entry” form, next to the “Location” field, click the “Add New” command button.
8. Complete the following fields for each site in the GIS shapefile.
  - a. Network Code
  - b. Park Code
  - c. Zone
  - d. Site Type
  - e. Location Name
  - f. Watershed
  - g. Township, Range, and Section
  - h. USGS 7.5’ Quad Map Name
9. Once you have entered the information for each site, click the “Close” button.
10. Close all the forms until you are back at the main screen.

*Updating Species Lists:* The next thing that needs to be done is updating the species list for the parks that will be surveyed that year. To complete this task, the Data Manager should do the following:

1. Download the entire invertebrate species list from NPSpecies for the park(s) that will be surveyed.
2. In the project database, from the main menu, hit the F11 button. This should bring up the database view of the database.
3. Open the `tlu_Species_List` table and reorganize the downloaded species list (step 1 above) so that it matches the file structure of this table.

## SOP #20: Database (continued).

4. Make a copy of the tlu\_Species\_List table and rename it tlu\_Species\_List\_YYYY. Where the year is the year previous to this upcoming field season.
5. Delete all the records in the tlu\_Species\_List table.
6. Copy the records from the species list you downloaded and reorganized and paste those records into the tlu\_Species\_List table.
7. Run the query called: qry\_Species\_Update
8. Open the table: tlu\_Species\_List and populate any “Lifeform” cells that do not have a value.
9. You now have an updated species list for the database and have saved the species list from the previous year.

*Setting up the Tablet PC:* Once you have completed updating the database, do the following to get the database onto the Tablet PC that the field crews will use to enter data.

1. In the Stream\_Data subfolder of the Stream Monitoring folder, look for a folder called field crew materials template.
2. Make certain this folder contains the following:
  - a. The most up-to-date stream protocol.
  - b. A blank project database with the corrections / updates listed above incorporated.
  - c. A blank copy of all log books (equipment, training, datasheet, and events).
  - d. Any supporting documentation that might help crews in the field.
  - e. A blank copy of the data entry sheets.
  - f. User guides for all electronic equipment.
  - g. A copy of base data and site location GIS files for the project.
3. Once these items have been updated, login to the Tablet PC (using the Field Crew login) and place a copy of the folder on the C drive.
4. Create a shortcut to this folder on the desktop.
5. Open the front-end of the database and make certain it is linked to the back-end.

### ***Returning from Field Work***

Once the field crew returns, have them turn in the Tablet PC and their backup flash drives immediately. These should be kept in a secure location until the data have been downloaded to the Klamath Network Server. Once you have all the field crew’s data, complete the following steps.

1. Place a copy of all databases in the following location: G:\Monitoring\Stream\_Monitoring\Stream\_Data\Seasonal\_Data\yyyy\database, where the year is the year the field work was conducted.
2. Let the Project Lead know the databases are available for verification and validation processes.
3. Once the databases have been processed, and if there is more than one database, have the Data Manager merge the databases into one project database. Store the database in the following location:  
G:\Monitoring\Stream\_Monitoring\Stream\_Data\Seasonal\_Data\yyyy\database. Where the year is the year the field work was conducted. Make certain to rename the database by adding the work final.
4. Run the built in QA/QC process to make sure the data are accurate and then inform the Project Lead you are going to load the data into the Master Database. If there are still

## SOP #20: Database (continued).

problems with the data, work with the Project Lead to resolve any issues and then repeat steps 3-5.

5. You are finished. You should now have this year's validated and verified data loaded into the master database. You should also have the annual data stored in the proper location.

### ***Creating a Blank Project Database***

Now that the field season is over and the data have been QA/QCed and loaded in the proper databases, you need to create a blank database for the next field season. Follow these steps (to be completed by the Data Manager):

1. Make a copy of the back-end and front-end master database and place it in your working network folder. MAKE CERTAIN you relink the front-end and back-end databases properly.
2. Open the administrative form and click the command button to delete all records.
3. You should now have a blank database with updated locations and lookup tables. Save this database in the following folder: G:\Monitoring\Stream\_Monitoring\Stream\_Data\Database\Blank\_Database\2008, where the year is the year of the next survey year (e.g., if data collected in 2008, the folder would be named 2009).

### **Project and Master Database Structure**

The project and master database for this protocol are very similar in structure. The project database forms may be slightly different to accommodate for the smaller screen size on the tablet computers. In addition, the master database contains more reporting options, including the automated download to the electronic deliverable required by the WRD so data can be uploaded into the NPSTORET. The relational structure (Figure 2) of the database and the data dictionary are provided at the end of this SOP. In addition, a brief description of the tables (Table 1) and forms (Table 2) are provided below. As specific queries and reports are developed for the protocol, they will be added to this SOP.

### **Updating Database Structure**

While the Metadata Interview form and updated data dictionary submitted last year should indicate if any changes to the database are needed, it is always a good idea to check with the Project Lead for additional changes. Tables 1-4, the stream database relational diagram, and the data dictionary below are provided to give an overview of the database structure. This structure should NOT be altered without discussing the changes with the Data Manager.

## SOP #20: Database (continued).

**Table 1.** A brief description of the tables that are in the KLMN Stream database.

| Table Name                | Description                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| tbl_Db_Metadata           | This table contains the database description and links to I&M metadata tools.                                                       |
| tbl_Db_Revision           | This tables stores the revision history of the database                                                                             |
| tbl_Events                | This table contains the general information about a visit to the site                                                               |
| tbl_Flags                 | This table contains flag information about data on the specimen, water chemistry, Benthos, and Periphyton datasheets.               |
| tbl_Flags_Sheet           | This table contains flag information related to the discharge datasheet                                                             |
| tbl_Flags_Transect        | This table contains flag information related to the transect datasheet                                                              |
| tbl_Incidental            | This table contains the records of incidental sighting by the field crew                                                            |
| tbl_Invert_Main           | This table stores information about the general methods used to sample inverts                                                      |
| tbl_Invert_Species        | This table stores information about inverts sampled                                                                                 |
| tbl_Locations             | This table stores the information about the location of the monitoring plots                                                        |
| tbl_Photos                | This table stores the data linked to the photographs for each plot                                                                  |
| tbl_Reach_Benthos         | This table stores information about the benthos habitat                                                                             |
| tbl_Reach_Category        | This table stores information about the pools, riffles, and runs                                                                    |
| tbl_Reach_Determination   | This table stores information about the measures to determine transect placement                                                    |
| tbl_Reach_Discharge       | This table stores information about the discharge                                                                                   |
| tbl_Reach_FChem           | This table stores information about the field chemistry data                                                                        |
| tbl_Reach_Periphyton      | This table stores information about periphyton samples                                                                              |
| tbl_Reach_Slope           | This table stores information slope the reach                                                                                       |
| tbl_Reach_Species         | This table stores information about the fish and amphibians observed                                                                |
| tbl_Reach_Species_Methods | This table stores information about the methods used to collect fish and amphibians                                                 |
| tbl_Reach_Transect        | This table stores information about the 11 transects                                                                                |
| tbl_Reach_Trees           | This table stores information about large trees near the stream                                                                     |
| tbl_Reach_WChem           | This table stores information about water chemistry                                                                                 |
| tbl_Reach_WD_AboveBank    | This table stores information about woody debris above bankfull                                                                     |
| tbl_Reach_WD_Bankfull     | This table stores information about woody debris at bankfull                                                                        |
| tbl_Sites                 | This table stores information about the stream being surveyed                                                                       |
| tlu_Contacts              | This is a lookup table that contains information about individuals working on this project                                          |
| tlu_Enumerations          | This is a lookup table that contains the lookup values for all picklist with the exception of contact and species list information. |
| tlu_Species_List          | This is a lookup table that contains information about the species that occur in each park                                          |
| xref_Event_Contacts       | This is a cross-reference table between events and contacts.                                                                        |

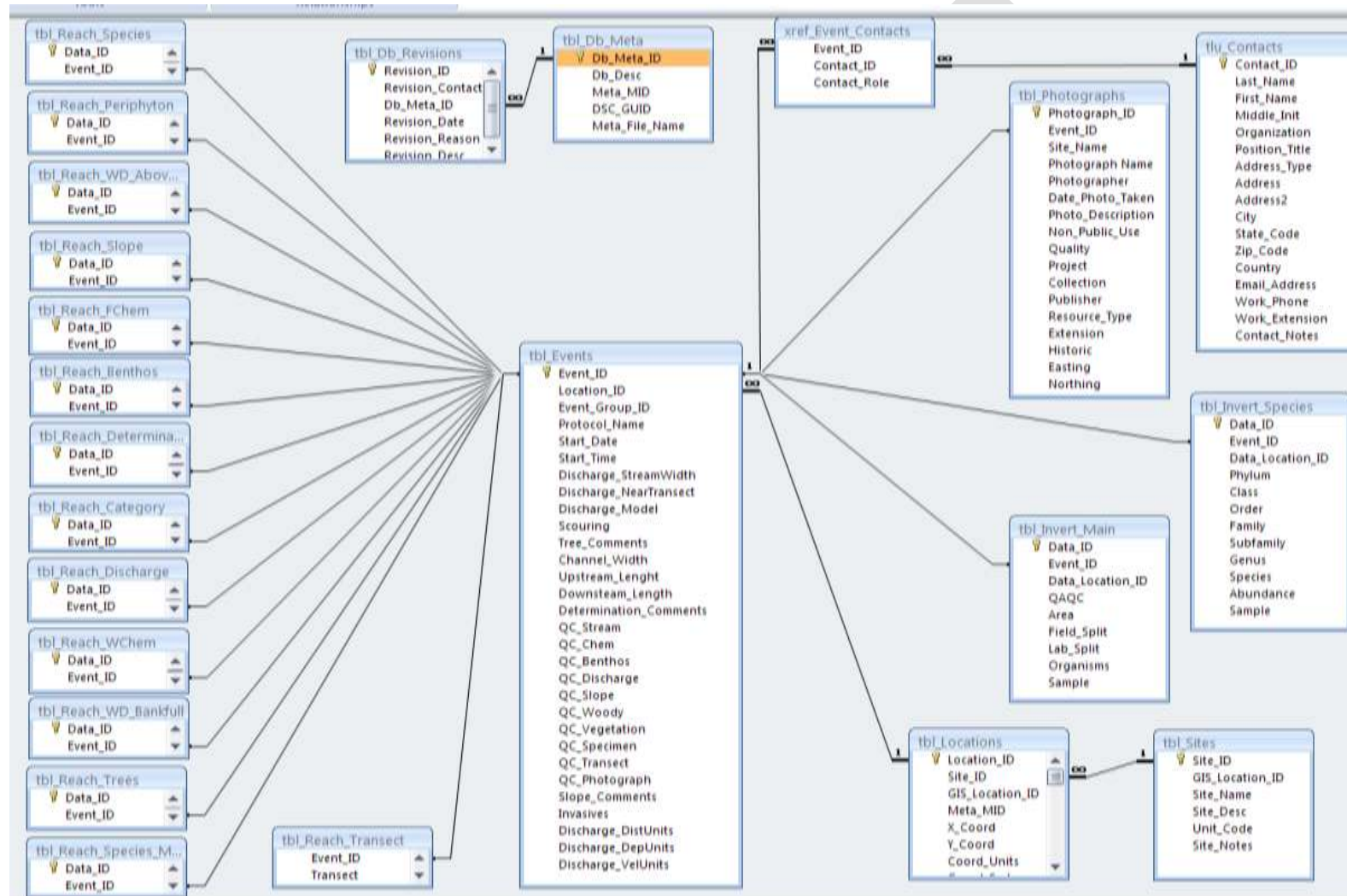
## SOP #20: Database (continued).

**Table 2.** A brief description of the forms that are used in the stream monitoring database.

| Form Name                  | Description                                            |
|----------------------------|--------------------------------------------------------|
| frm_Contact                | Contains contact info for all personnel                |
| frm_Data Entry             | Form for recording time and personnel doing data entry |
| frm_Data_Gateway           | List and gateway for previously collected/entered data |
| frm_Location               | Location information for sites                         |
| frm_Metadata_Display       | Displays the database metadata                         |
| frm_Metadata_Edit          | Allows the user to edit the metadata                   |
| frm_Sites                  | Reach specifics (driving directions, etc.)             |
| frm_Switchboard            | Main screen of the database                            |
| fsub_Determination         | Used to enter stream width and length measurements     |
| fsub_Flags                 | Flagged data information (special comments)            |
| fsub_Flags_Sheet           | Flagged data information (special comments)            |
| fsub_Flags_Transect        | Flagged data information (special comments)            |
| fsub_Invert_Main           | Method metadata from macroinvertebrate collection      |
| fsub_Invert_Species        | Species data provided by contract laboratory           |
| fsub_Photograph            | Photographic metadata                                  |
| fsub_Reach_Benthos         | Benthic invertebrate collection data                   |
| fsub_Reach_Category        | Stream macrohabitat data (pool/riffle/glide)           |
| fsub_Reach_Discharge       | Discharge data                                         |
| fsub_Reach_FChem           | Water chemistry data from field                        |
| fsub_Reach_Periphyton      | Data on periphyton collection                          |
| fsub_Reach_Slope           | Slope data                                             |
| fsub_Reach_Species         | Vertebrate species data                                |
| fsub_Reach_Species_Methods | Methods used to collect Vertebrates                    |
| fsub_Reach_Transect        | Stream habitat data for transected based methods       |
| fsub_Reach_WChem           | Water Chemistry data provided by contract laboratory   |
| fsub_Reach_WD_AbvBnk       | Woody debris data for above bankfull                   |
| fsub_Reach_WD_Bnk          | Woody debris data for below bankfull                   |



## Relationship Diagram



**Figure 2.** Relational diagram of the tables contained in the KLMN stream monitoring database.

## Data Dictionary

**tbl\_Db\_Meta:** This table contains metadata about the stream monitoring database.

| Field Name     | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                                                                                              |
|----------------|----------|------------|------------|---------|-------------------|-----------|-----------|----------------------------------------------------------------------------------------------------------------|
| Db_Meta_ID     | Y        | Text       | 50         | 0       |                   |           |           | Local primary key                                                                                              |
| DB_Desc        | Y        | Memo       |            | 0       |                   |           |           | Description of the database purpose                                                                            |
| Meta_MID       | Y        | Text       | 255        | 0       |                   |           |           | Link to NPS Data Store                                                                                         |
| DSC_GUID       | Y        | Text       | 50         | 0       |                   |           |           | Link to I&M Dataset Catalog desktop metadata tool                                                              |
| Meta_File_Name | N        | Text       | 50         | 0       |                   |           |           | Name of the metadata file that describes this NRDT data file (must be in the same directory as this data file) |

**tbl\_Db\_Revision:** This table contains the revision history of the stream monitoring database.

| Field Name          | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                          |
|---------------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------------|
| Revision_ID         | Y        | Text       | 50         | 0       | NA                | NA        | NA        | Database revision (version) number or code |
| Revision_Contact_ID | N        | Text       | 50         | 0       | NA                | NA        | NA        | Link to tlu_Contacts                       |
| Db_Meta_ID          | Y        | Text       | 50         | 0       | NA                | NA        | NA        | Link to tbl_Db_Meta                        |
| Revision_Date       | Y        | Date/Time  | NA         | 0       | NA                | NA        | NA        | Database revision date                     |
| Revision_Reason     | Y        | Memo       | NA         | 0       | NA                | NA        | NA        | Reason for the database revision           |
| Revision_Desc       | Y        | Memo       | NA         | 0       | NA                | NA        | NA        | Revision description                       |

**tbl\_Flags:** This table contains descriptive data for flags related to the discharge form and specimen form.

| Field Name | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                                                  |
|------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------------------------------------|
| Data_ID    | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                                                |
| Comments   | Y        | Memo       | NA         | NA      | NA                | NA        | NA        | Describes why the measurement was flagged                          |
| Code       | Y        | Text       | 3          | NA      | NA                | NA        | NA        | Special code for a flag that helps describe why a unit was flagged |
| Event_ID   | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                                                 |

**tbl\_Events:** This table contains data that is specific to a visit of a stream reach.

| Field Name             | Required | Field Type  | Field Size | Decimal | Enumerated Domain                                                      | Min Value | Max Value | Field Description                                                       |
|------------------------|----------|-------------|------------|---------|------------------------------------------------------------------------|-----------|-----------|-------------------------------------------------------------------------|
| Event_ID               | Y        | Text        | 50         | NA      | NA                                                                     | NA        | NA        | Event identifier                                                        |
| Location_ID            | Y        | Text        | 50         | NA      | NA                                                                     | NA        | NA        | Link to tbl_Locations                                                   |
| Event_Group_ID         | N        | Text        | 50         | NA      | NA                                                                     | NA        | NA        | Link to tbl_Event_Group                                                 |
| Protocol_Name          | Y        | Text        | 100        | NA      | Draft Stream Protocol v1.0,<br>KLMN Stream Monitoring<br>Protocol v1.0 | NA        | NA        | The name and version of the protocol being implemented                  |
| Start_Date             | Y        | Date / Time | NA         | NA      | NA                                                                     | NA        | NA        | Date the survey was conducted                                           |
| Start_Time             | Y        | Date / Time | NA         | NA      | NA                                                                     | 0:00      | 24:00:00  | Time the survey started                                                 |
| Discharge_StreamWidth  | Y        | Number      | NA         | 1       | NA                                                                     | 0.0       | 100       | Width of the stream where the discharge measure was taken               |
| Discharge_NearTransect | Y        | Text        | 1          | NA      | A, B, C, D, E, F, G, H, I, J, K                                        |           |           | Nearest transect to the point where the discharge measurement was taken |
| Discharge_Model        | Y        | Text        | 50         | NA      | Sontek ADV Flowtracker                                                 |           |           | Model of instrument used to measure the discharge of the stream         |
| Scouring               | Y        | Text        | 2          | NA      | 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11                             | 01        | 11        | A code of 1-11 that describes the scouring at the reach.                |
| Tree_Comments          | N        | Memo        | NA         | NA      | NA                                                                     | NA        | NA        | General comments about the measurement of large trees near the reach.   |
| QC_Stream              | Y        | Text        | 50         | NA      | tbl_Contacts                                                           | NA        | NA        | Person who reviewed the Stream form                                     |
| QC_Chem                | Y        | Text        | 50         | NA      | tbl_Contacts                                                           | NA        | NA        | Person who reviewed the water chemistry form                            |
| QC_Benthos             | Y        | Text        | 50         | NA      | tbl_Contacts                                                           | NA        | NA        | Person who reviewed the benthos form                                    |
| QC_Discharge           | Y        | Text        | 50         | NA      | tbl_Contacts                                                           | NA        | NA        | Person who reviewed the discharge form                                  |
| QC_Slope               | Y        | Text        | 50         | NA      | tbl_Contacts                                                           | NA        | NA        | Person who reviewed the slope form                                      |

|                     |   |      |    |    |                          |    |    |                                               |
|---------------------|---|------|----|----|--------------------------|----|----|-----------------------------------------------|
| QC_Woody            | Y | Text | 50 | NA | tbl_Contacts             | NA | NA | Person who reviewed the woody debris forms    |
| QC_Vegetation       | Y | Text | 50 | NA | tbl_Contacts             | NA | NA | Person who reviewed the vegetation form       |
| QC_Specimen         | Y | Text | 50 | NA | tbl_Contacts             | NA | NA | Person who reviewed the specimen form         |
| QC_Transect         | Y | Text | 50 | NA | tbl_Contacts             | NA | NA | Person who reviewed the transect form         |
| QC_PhotoGraph       | Y | Text | 50 | NA | tbl_Contacts             | NA | NA | Person who reviewed the photograph form       |
| Slope_Comments      | N | Memo | NA | NA | NA                       | NA | NA | General comments about the slope measurement. |
| Discharge_DistUnits | Y | Text | 10 | NA | Tenths ft, cm, m/s, ft/s | NA | NA | Unit measure for the discharge distance       |
| Discharge_DepUnits  | Y | Text | 10 | NA | Tenths ft, cm, m/s, ft/s | NA | NA | Unit measure for the discharge depth          |
| Discharge_VelUnits  | Y | Text | 10 | NA | Tenths ft, cm, m/s, ft/s | NA | NA | Unit measure for the discharge velocity       |

**tbl\_Flags\_Sheet:** This table contains descriptive data for flags related to the water chemistry, Benthos, and Periphyton form.

| Field Name | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                                                  |
|------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------------------------------------|
| Data_ID    | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                                                |
| Comments   | Y        | Memo       | NA         | NA      | NA                | NA        | NA        | Describes why the measurement was flagged                          |
| Code       | Y        | Text       | 3          | NA      | NA                | NA        | NA        | Special code for a flag that helps describe why a unit was flagged |
| Event_ID   | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                                                 |

**tbl\_Invert\_Main**

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This table contains descriptive data about the sample used to determine the invertebrate composition

| Field Name  | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                                              |
|-------------|----------|------------|------------|---------|-------------------|-----------|-----------|----------------------------------------------------------------|
| Data_ID     | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                                            |
| Event_ID    | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                                             |
| QAQC        | N        | Text       | 5          | 0       | Blank, QAQC       | NA        | NA        | If marked QAQC, this sample went through additional QAQC steps |
| Area        | Y        | Number     | NA         | 5       | NA                | NA        | NA        | Area the sample covered                                        |
| Field_Split | Y        | Number     | NA         | 0       |                   | 0         | 100       | % split if sample was split in the field                       |
| Lab_Split   | Y        | Number     | NA         | 2       |                   | 0         | 100       | % split if sample was split in the lab                         |
| Organisms   | Y        | Number     | NA         | 0       |                   | 1         | NA        | Number of organisms in the sample                              |
| Samples     | Y        | Number     | NA         | 0       | 1, 2              | 1         | 2         | Sample number if more than 1 sample was taken at the site.     |

**tbl\_Invert\_Species:**

This table contains information about the invertebrate species found in each sample of the reach.

| Field Name  | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description               |
|-------------|----------|------------|------------|---------|-------------------|-----------|-----------|---------------------------------|
| Data_ID     | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier             |
| Event_ID    | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event              |
| ITIS_Number | Y        | Number     | 6          | 0       | NA                | NA        | NA        | ITIS Unique number              |
| Abundance   | Y        | Number     | NA         | 5       | NA                | NA        | NA        | Species abundance in the sample |

**tbl\_Location:**

This is data related to the point (transect F) where the crew navigates to so they can start surveying.

| Field Name      | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                |
|-----------------|----------|------------|------------|---------|-------------------|-----------|-----------|----------------------------------|
| Location_ID     | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Location identifier              |
| Site_ID         | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Link to tbl_Sites                |
| GIS_Location_ID | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Link to GIS feature              |
| Meta_MID        | N        | Text       | 50         | NA      | NA                | NA        | NA        | Link to NR-GIS Metadata Database |
| X_Coord         | Y        | Number     | 6          | 5       | NA                | NA        | NA        | X coordinate                     |
| Y_Coord         | Y        | Number     | 7          | 5       | NA                | NA        | NA        | Y coordinate                     |
| Coord_Units     | Y        | Text       | 10         | NA      | m, d.dd           | NA        | NA        | Coordinate distance units        |

|                        |   |             |    |    |                                                                                                                                                                                                                                      |    |    |                                                        |
|------------------------|---|-------------|----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|--------------------------------------------------------|
| Coord_System           | Y | Text        | 3  | NA | UTM, Geo, ft                                                                                                                                                                                                                         | NA | NA | Coordinate system                                      |
| UTM_Zone               | Y | Text        | 3  | NA | 10N                                                                                                                                                                                                                                  | NA | NA | UTM Zone                                               |
| Datum                  | Y | Text        | 5  | NA | NAD83, WGS84                                                                                                                                                                                                                         | NA | NA | Datum of mapping ellipsoid                             |
| Coord_Equipment        | Y | Text        | 15 | NA | Garmin 76CSx, Garmin 60CSx, Trimble XM, Trimble XT                                                                                                                                                                                   | NA | NA | Equipment used to collect coordinate information       |
| Est_H_Error            | Y | Number      | 2  | 1  | NA                                                                                                                                                                                                                                   | NA | NA | Estimated horizontal accuracy when using Garmin units  |
| PDOP                   | Y | Number      | 2  | 0  | NA                                                                                                                                                                                                                                   | NA | NA | Estimated horizontal accuracy when using Trimble units |
| Accuracy_Notes         | N | Memo        | NA | NA | NA                                                                                                                                                                                                                                   | NA | NA | Notes about the accuracy of the location.              |
| Loc_Name               | Y | Text        | 3  | NA | NA                                                                                                                                                                                                                                   | NA | NA | Unique name of the site                                |
| Loc_Type               | Y | Text        | 20 | NA | Reach Center Point                                                                                                                                                                                                                   | NA | NA | Type of site                                           |
| Update_Date            | Y | Date / Time | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | Date this data was updated                             |
| Loc_Notes              | N | Memo        | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | General notes about the site                           |
| Verification_GPS       | N | Yes / No    | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | How the site was found                                 |
| Verification_LC        | N | Yes / No    | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | How the site was found                                 |
| Verification_Signs     | N | Yes / No    | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | How the site was found                                 |
| Verification_Roads     | N | Yes / No    | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | How the site was found                                 |
| Verification_Topo      | N | Yes / No    | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | How the site was found                                 |
| Verification_Other     | N | Yes / No    | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | How the site was found                                 |
| Verification_OtherDesc | N | Yes / No    | NA | NA | NA                                                                                                                                                                                                                                   | NA | NA | How the site was found                                 |
| Verification_None      | N | Yes / No    | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | How the site was found                                 |
| Site_Sampled           | Y | Yes / No    | NA | NA | Yes / No                                                                                                                                                                                                                             | NA | NA | If the site was sampled                                |
| Sampleable             | N | Text        | 50 | NA | Wadeable, Partially Wadeable, Wadeable Interrupted, Altered - Stream Present, But Not As On Map                                                                                                                                      | NA | NA | If sampled, reason why                                 |
| NonSampleable          | N | Text        | 50 | NA | Dry - Visited, Dry - Not Visited, Wetland - No Channel, Map Error - No Waterbody or Channel Present, Impounded (under lake), Other, Not Wadeable At This Time, Permission Denied, Permanently Inaccessible, Temporarily Inaccessible | NA | NA | If not sampled, reason why                             |
| DriveTime              | Y | Date / Time | NA | NA | NA                                                                                                                                                                                                                                   | NA | NA | Time it takes to drive to the parking spot             |
| HikeTime               | Y | Date / Time | NA | NA | NA                                                                                                                                                                                                                                   | NA | NA | Time it takes to hike to the site                      |
| Directions             | Y | Memo        | NA | NA | NA                                                                                                                                                                                                                                   | NA | NA | Directions to the site.                                |

**tbl\_Photos:** This table contains data about photographs taken while working on this project.

| Field Name        | Required | Field Type  | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                                                                   |
|-------------------|----------|-------------|------------|---------|-------------------|-----------|-----------|-------------------------------------------------------------------------------------|
| Photograph_ID     | Y        | Text        | 50         | NA      | NA                | NA        | NA        | Unique identifier for the photograph                                                |
| Event_ID          | Y        | Text        | 50         | NA      | NA                | NA        | NA        | Unique Identifier in tbl_Locations for the site                                     |
| Photograph Name   | Y        | Text        | 100        | NA      | NA                | NA        | NA        | Name of the photograph                                                              |
| Photographer      | Y        | Text        | 100        | NA      | tlu_Contacts      | NA        | NA        | Individual who took the picture                                                     |
| Date_Photo_Taken  | Y        | Date / Time | NA         | NA      | NA                | NA        | NA        | Date the photograph was taken                                                       |
| Photo_Description | Y        | Memo        | NA         | NA      | NA                | NA        | NA        | Description of the Photograph                                                       |
| Non_Public_Use    | Y        | Yes / No    | NA         | NA      | Yes, No           | NA        | NA        | If checked, the NPS does not have permission to use this picture in public displays |
| Quality           | Y        | Yes / No    | NA         | NA      | Yes, No           | NA        | NA        | If checked, this is a great picture that can be used for coverpages, websites, etc. |
| Project           | Y        | Text        | 100        | NA      | Stream Monitoring | NA        | NA        | If this picture is taken as part of a project, the project name is entered here     |
| Collection        | Y        | Text        | 4          | NA      | KLMN              | NA        | NA        | NPS Require field. Which collection is photograph is part belongs too.              |
| Publisher         | Y        | Text        | 10         | NA      | NPS               | NA        | NA        | NPS Required Field. The person or organization that is making this image available  |
| Resource_Type     | Y        | Text        | 5          | NA      | Image             | NA        | NA        | NPS Required Field. The type of product.                                            |
| Extension         | Y        | Text        | 4          | NA      | .jpg              | NA        | NA        | Type of picture taken                                                               |
| Historic          | Y        | Text        | NA         | NA      | Yes, No           | NA        | NA        | Pictures are considered historic if they were collected prior to 2007               |
| Easting           | N        | Number      | 6          | 0       | NA                | NA        | NA        | Coordinate                                                                          |
| Northing          | N        | Number      | 7          | 0       | NA                | NA        | NA        | Coordinate                                                                          |

**tbl\_Reach\_Benthos:** This table contains the data about the benthos samples taken along the stream reach.

| Field Name       | Required | Field Type | Field Size | Decimal | Enumerated Domain                  | Min Value | Max Value | Field Description                                         |
|------------------|----------|------------|------------|---------|------------------------------------|-----------|-----------|-----------------------------------------------------------|
| Data_ID          | Y        | Text       | 50         | NA      | NA                                 | NA        | NA        | Data row identifier                                       |
| Event_ID         | Y        | Text       | 50         | NA      | NA                                 | NA        | NA        | Links to the event                                        |
| Nearest_Transect | Y        | Text       | 1          | NA      | A, B, C, D, E, F, G, H, I, J, K    | NA        | NA        | Transect nearest to where the benthos sample was obtained |
| Substrate        | Y        | Text       | 10         | NA      | Fine / Sand, Gravel, Coarse, Other | NA        | NA        | Substrate type where the benthos sample was obtained      |

**tbl\_Reach\_Category:** This table contains information about the pools, riffles, and runs in a sampled stream reach.

| Field Name    | Required | Field Type | Field Size | Decimal | Enumerated Domain   | Min Value | Max Value | Field Description                                                   |
|---------------|----------|------------|------------|---------|---------------------|-----------|-----------|---------------------------------------------------------------------|
| Data_ID       | Y        | Text       | 50         | NA      | NA                  | NA        | NA        | Data row identifier                                                 |
| Event_ID      | Y        | Text       | 50         | NA      | NA                  | NA        | NA        | Links to the event                                                  |
| Category_Type | Y        | Text       | 7          | NA      | Pool, Riffle, Glide | NA        | NA        | Category variable that describes the stream component being sampled |
| Start_Dist    | Y        | Number     | NA         | 0       | NA                  | 0         | 500       | Starting point of the structure                                     |
| End_Dist      | Y        | Number     | NA         | 0       | NA                  | 0         | 500       | Ending point of the structure                                       |

**tbl\_Reach\_Determination:** This table contains the measurements used to determine the placement of the 11 transects along the stream reach.

| Field Name        | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                                                      |
|-------------------|----------|------------|------------|---------|-------------------|-----------|-----------|------------------------------------------------------------------------|
| Data_ID           | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                                                    |
| Event_ID          | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                                                     |
| Channel_Width     | Y        | Number     | NA         | 0       | NA                | 0         | 100       | Width of the channel used to determine the layout of the 11 transects. |
| Upstream_Lenght   | Y        | Number     | NA         | 0       | NA                | 75        | 250       | Distance upstream to the nearest transect                              |
| Downstream_Length | Y        | Number     | NA         | 0       | NA                | 75        | 250       | Distance downstream to the nearest transect                            |



|                        |   |      |    |    |    |    |    |                                                                                                                                   |
|------------------------|---|------|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------|
| Determination_Comments | N | Memo | NA | NA | NA | NA | NA | General comments about the use of the channel width and upstream/downstream lengths used to determine the layout of the transects |
|------------------------|---|------|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------|

**tbl\_Reach\_Discharge:** This table contains data related to the discharge measure.

| Field Name   | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                          |
|--------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------------|
| Data_ID      | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                        |
| Event_ID     | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                         |
| Point_Number | Y        | Number     | NA         | 0       | NA                | 1         | 20        | Sequential numbering of data rows          |
| Distance     | Y        | Number     | NA         | 0       | NA                | 0         | NA        | Distance from bank to measurement location |
| Depth        | Y        | Number     | NA         | 1       | NA                | 0         | NA        | Water depth at measurement location        |
| Velocity     | Y        | Number     | NA         | 3       | NA                | -10       | NA        | Water velocity at measurement location     |

**tbl\_Reach\_FChem:** This table contains measures related to water chemistry taken while in the field.

| Field Name            | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                     |
|-----------------------|----------|------------|------------|---------|-------------------|-----------|-----------|---------------------------------------|
| Data_ID               | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                   |
| Event_ID              | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                    |
| PH_Standard           | Y        | Number     | NA         | 0       | NA                | 4         | 10        | pH calibration solution used          |
| PH_Check              | Y        | Number     | NA         | 1       | NA                | 1         | 14        | Initial Measured pH                   |
| Conductivity_Standard | N        | Number     | NA         | 0       | NA                | 0         | 10000     | Conductivity solution for calibration |
| Conductivity_Check    | N        | Number     | NA         | 1       | NA                | 0         | 10000     | Initial Conductivity reading          |
| DO_Standard           | Y        | Number     | NA         | 0       | NA                | 100       | 100       | DO calibration (should be 100%)       |
| DO_Check              | Y        | Number     | NA         | 1       | NA                | 0         | 25        | Measured DO                           |
| DO_Membrane           | N        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Was membrane replaced?                |
| Alkalinity_Volume_1   | Y        | Number     | NA         | 0       | NA                | 50        | 100       | Volume of water used for sample 1     |
| Alkalinity_Volume_2   | Y        | Number     | NA         | 0       | NA                | 50        | 100       | Volume of water used for sample 2     |
| Alkalinity_Volume_3   | Y        | Number     | NA         | 0       | NA                | 50        | 100       | Volume of water used for sample 3     |
| Alkalinity_Titrant_1  | Y        | Number     | NA         | 2       | NA                | 0.16      | 1.6       | Titrant Strength used                 |

|                      |   |          |     |    |                                                                                                           |      |      |                                                       |
|----------------------|---|----------|-----|----|-----------------------------------------------------------------------------------------------------------|------|------|-------------------------------------------------------|
| Alkalinity_Titrant_2 | Y | Number   | NA  | 2  | NA                                                                                                        | 0.16 | 1.6  | Titrant Strength used                                 |
| Alkalinity_Titrant_3 | Y | Number   | NA  | 2  | NA                                                                                                        | 0.16 | 1.6  | Titrant Strength used                                 |
| Alkalinity_Reading_1 | Y | Number   | NA  | 0  | NA                                                                                                        | 0    | 1000 | Digital titrator reading                              |
| Alkalinity_Reading_2 | Y | Number   | NA  | 0  | NA                                                                                                        | 0    | 1000 | Digital titrator reading                              |
| Alkalinity_Reading_3 | Y | Number   | NA  | 0  | NA                                                                                                        | 0    | 1000 | Digital titrator reading                              |
| Channel_Pattern      | Y | Text     | 100 | NA | One Channel,<br>Anastomosing,<br>Braided Channel                                                          | NA   | NA   |                                                       |
| Channel_Constraint   | Y | Text     | 100 | NA | Constrained In<br>V-Shaped Valley,<br>Broad Valley,<br>Narrow Valley,<br>Unconstrained<br>in Broad Valley | NA   | NA   |                                                       |
| Constraint_Feature   | Y | Text     | 100 | NA | Bedrock,<br>Hillslope,<br>Terrace, Human<br>Bank<br>Alterations, No<br>Constraining<br>Features           | NA   | NA   |                                                       |
| Channel_Percent      | Y | Number   | NA  | 0  | NA                                                                                                        | 0    | 100  | Percent of channel constrained                        |
| Bankfull_Width       | Y | Number   | NA  | 0  | NA                                                                                                        | 0    | NA   | Estimated average bankfull width                      |
| Valley_Width         | N | Number   | NA  | 0  | NA                                                                                                        | 0    | NA   | Estimated valley width                                |
| Valley_Border        | N | Yes / No | NA  | NA | Yes, No                                                                                                   | NA   | NA   | Denotes whether the valley<br>borders are visible     |
| Channel_Notes        | N | Memo     | NA  | NA | NA                                                                                                        | NA   | NA   | General notes about the<br>measurements in this table |

**tbl\_Reach\_Periphyton:** This table records the transect where the periphyton sample was taken.

| Field Name | Required | Field Type | Field Size | Decimal | Enumerated Domain               | Min Value | Max Value | Field Description                                            |
|------------|----------|------------|------------|---------|---------------------------------|-----------|-----------|--------------------------------------------------------------|
| Data_ID    | Y        | Text       | 50         | NA      | NA                              | NA        | NA        | Data row identifier                                          |
| Event_ID   | Y        | Text       | 50         | NA      | NA                              | NA        | NA        | Links to the event                                           |
| Transect   | Y        | Text       | 1          | NA      | A, B, C, D, E, F, G, H, I, J, K | NA        | NA        | Transect nearest to where the peryphyton sample was obtained |

**tbl\_Reach\_Slope:** This table contains information about the slope of the reach.

| Field Name    | Required | Field Type | Field Size | Decimal | Enumerated Domain               | Min Value | Max Value | Field Description                                                          |
|---------------|----------|------------|------------|---------|---------------------------------|-----------|-----------|----------------------------------------------------------------------------|
| Data_ID       | Y        | Text       | 50         | NA      | NA                              | NA        | NA        | Data row identifier                                                        |
| Event_ID      | Y        | Text       | 50         | NA      | NA                              | NA        | NA        | Links to the event                                                         |
| Transect      | Y        | Text       | 1          | NA      | A, B, C, D, E, F, G, H, I, J, K | NA        | NA        | Transects range where the slope is measured between the 2 transects listed |
| Upper_Reading | Y        | Number     | NA         | 2       |                                 | 0         |           | Slope reading at the upper portion of the reach segment                    |
| Lower_Reading | Y        | Number     | NA         | 2       |                                 | 0         |           | Slope reading at the lower portion of the reach segment                    |

**tbl\_Reach\_Species:** This table contains metadata about the stream monitoring database.

| Field Name      | Required | Field Type | Field Size | Decimal | Enumerated Domain                         | Min Value | Max Value | Field Description                                                                  |
|-----------------|----------|------------|------------|---------|-------------------------------------------|-----------|-----------|------------------------------------------------------------------------------------|
| Data_ID         | Y        | Text       | 50         | NA      | NA                                        | NA        | NA        | Data row identifier                                                                |
| Event_ID        | Y        | Text       | 50         | NA      | NA                                        | NA        | NA        | Links to the event                                                                 |
| Spec_Number     | Y        | Number     | 2          | NA      | NA                                        | 1         | NA        | Sequential count of species observed                                               |
| Species         | Y        | Text       | 150        | NA      | tlu_Species                               | NA        | NA        | ITIS number for species observed                                                   |
| LifeStage       | Y        | Text       | 20         | NA      | Egg Mass, Tadpole, Fry, Fingerling, Adult | NA        | NA        | Life stage the species was in                                                      |
| Abundance       | Y        | Text       | 20         | NA      | ??????                                    | NA        | NA        | Generalized abundance category used when too many individuals are present to count |
| Count           | Y        | Number     | NA         | 0       | NA                                        | 1         | NA        | Count of the number of individuals                                                 |
| Length_Min      | Y        | Number     | NA         | 0       | NA                                        | 1         | NA        | Size of the smallest individual                                                    |
| Length_Max      | Y        | Number     | NA         | 0       | NA                                        | 1         | NA        | Size of the largest individual                                                     |
| Anom_Count      | Y        | Number     | NA         | 0       | NA                                        | 0         | NA        | Number of species with anomalies                                                   |
| Mortality_Count | Y        | Number     | NA         | 0       | NA                                        | 0         | NA        | Number of species dead                                                             |
| Transect_A      | Y        | Yes / No   | NA         | NA      | Yes, No                                   | NA        | NA        | Transect where the species was observed                                            |
| Transect_B      | Y        | Yes / No   | NA         | NA      | Yes, No                                   | NA        | NA        | Transect where the species was observed                                            |
| Transect_C      | Y        | Yes / No   | NA         | NA      | Yes, No                                   | NA        | NA        | Transect where the species was observed                                            |
| Transect_D      | Y        | Yes / No   | NA         | NA      | Yes, No                                   | NA        | NA        | Transect where the species was observed                                            |

|               |   |          |    |    |         |    |    |                                           |
|---------------|---|----------|----|----|---------|----|----|-------------------------------------------|
| Transect_E    | Y | Yes / No | NA | NA | Yes, No | NA | NA | Transect where the species was observed   |
| Transect_F    | Y | Yes / No | NA | NA | Yes, No | NA | NA | Transect where the species was observed   |
| Transect_G    | Y | Yes / No | NA | NA | Yes, No | NA | NA | Transect where the species was observed   |
| Transect_H    | Y | Yes / No | NA | NA | Yes, No | NA | NA | Transect where the species was observed   |
| Transect_I    | Y | Yes / No | NA | NA | Yes, No | NA | NA | Transect where the species was observed   |
| Transect_J    | Y | Yes / No | NA | NA | Yes, No | NA | NA | Transect where the species was observed   |
| Species_Notes | Y | Memo     | NA | NA | NA      | NA | NA | General notes about the species observed. |

**tbl\_Reach\_Species\_Methods:** This table contains some general information about the species search including methods.

| Field Name  | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                          |
|-------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------------|
| Data_ID     | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                        |
| Event_ID    | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                         |
| Snorkeling  | MA       | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Was the site snorkled?                     |
| Seine       | MA       | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Was the site seined?                       |
| eFishing    | MA       | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Was electronic fishing conducted?          |
| Wave_Form   | MA       | Text       | 10         | NA      | AC, DC, Pulsed DC | NA        | NA        | Parameter describing setting for efishing. |
| Volts       | MA       | Number     | NA         | 0       |                   | NA        | NA        | Parameter describing setting for efishing. |
| Watts       | MA       | Number     | NA         | 0       |                   | NA        | NA        | Parameter describing setting for efishing. |
| Pulse_Rate  | MA       | Number     | NA         | 0       |                   | NA        | NA        | Parameter describing setting for efishing. |
| Amps        | MA       | Number     | NA         | 0       |                   | NA        | NA        | Parameter describing setting for efishing. |
| Pulse_Width | MA       | Number     | NA         | 0       |                   | NA        | NA        | Parameter describing setting for efishing. |
| Shock_Time  | MA       | Number     | NA         | 0       |                   | NA        | NA        | Parameter describing setting for efishing. |
| Fish_Time   | MA       | Number     | NA         | 0       |                   | NA        | NA        | Parameter describing setting for efishing. |
| Samp_Dist   | MA       | Number     | NA         | 0       |                   | NA        | NA        | Parameter describing setting for efishing. |
| Fished      | Y        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Was fish looked for?                       |
| Collected   | Y        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Was fish collected?                        |
| Visibility  | Y        | Text       | 4          |         | Good, Poor        | NA        | NA        | General visibility of the water?           |

**tbl\_Reach\_Transect:** This table contains the data related to substrate, cover, and disturbance along each of the transects.

| Field Name              | Required | Field Type | Field Size | Decimal | Enumerated Domain                             | Min Value | Max Value | Field Description                                    |
|-------------------------|----------|------------|------------|---------|-----------------------------------------------|-----------|-----------|------------------------------------------------------|
| Data_ID                 | Y        | Text       | 50         | NA      | NA                                            | NA        | NA        | Data row identifier                                  |
| Event_ID                | Y        | Text       | 50         | NA      | NA                                            | NA        | NA        | Links to the event                                   |
| Transect                | Y        | Text       | 15         | NA      | A, B, C, D, E, F, G, H, I, J, K, Side Channel | NA        | NA        | Transect where the measurements were taken           |
| Substrate_Dist_Lft      | N        | Number     | NA         | 0       | NA                                            | 0         | 0         | Tracks the position of the measurement               |
| Substrate_Dist_LftCnt   | N        | Number     | NA         | 0       | NA                                            | 25        | 25        | Tracks the position of the measurement               |
| Substrate_Dist_Cnt      | N        | Number     | NA         | 0       | NA                                            | 50        | 50        | Tracks the position of the measurement               |
| Substrate_Dist_RghtCnt  | N        | Number     | NA         | 0       | NA                                            | 75        | 75        | Tracks the position of the measurement               |
| Substrate_Dist_Rght     | N        | Number     | NA         | 0       | NA                                            | 100       | 100       | Tracks the position of the measurement               |
| Substrate_Depth_Lft     | Y        | Number     | NA         | 0       | NA                                            | 0         | NA        | Depth measured at that point                         |
| Substrate_Depth_LftCnt  | Y        | Number     | NA         | 0       | NA                                            | 0         | NA        | Depth measured at that point                         |
| Substrate_Depth_Cnt     | Y        | Number     | NA         | 0       | NA                                            | 0         | NA        | Depth measured at that point                         |
| Substrate_Depth_RghtCnt | Y        | Number     | NA         | 0       | NA                                            | 0         | NA        | Depth measured at that point                         |
| Substrate_Depth_Rght    | Y        | Number     | NA         | 0       | NA                                            | 0         | NA        | Depth measured at that point                         |
| Substrate_Size_Lft      | Y        | Text       | 2          | NA      | RS, RR, CB, GC, GF, SA, FN, HP, WD, Other, BL |           |           | Substrate type at that point                         |
| Substrate_Size_LftCnt   | Y        | Text       | 2          | NA      | RS, RR, CB, GC, GF, SA, FN, HP, WD, Other, BL |           |           | Substrate type at that point                         |
| Substrate_Size_Cnt      | Y        | Text       | 2          | NA      | RS, RR, CB, GC, GF, SA, FN, HP, WD, Other, BL |           |           | Substrate type at that point                         |
| Substrate_Size_RghtCnt  | Y        | Text       | 2          | NA      | RS, RR, CB, GC, GF, SA, FN, HP, WD, Other, BL |           |           | Substrate type at that point                         |
| Substrate_Size_Rght     | Y        | Text       | 2          | NA      | RS, RR, CB, GC, GF, SA, FN, HP, WD, Other, BL |           |           | Substrate type at that point                         |
| Substrate_Ebed_Lft      | Y        | Number     | NA         | 0       |                                               | 0         | 100       | Percent embeddeness at that point                    |
| Substrate_Ebed_LftCnt   | Y        | Number     | NA         | 0       |                                               | 0         | 100       | Percent embeddeness at that point                    |
| Substrate_Ebed_Cnt      | Y        | Number     | NA         | 0       |                                               | 0         | 100       | Percent embeddeness at that point                    |
| Substrate_Ebed_RghtCnt  | Y        | Number     | NA         | 0       |                                               | 0         | 100       | Percent embeddeness at that point                    |
| Substrate_Ebed_Rght     | Y        | Number     | NA         | 0       |                                               | 0         | 100       | Percent embeddeness at that point                    |
| Cover_Fli_Alg           | Y        | Number     | NA         | 0       | 0, 1, 2, 3, 4                                 | 0         | 4         | Estimated cover of Filamentous Algae on the transect |
| Cover_Macro             | Y        | Number     | NA         | 0       | 0, 1, 2, 3, 4                                 | 0         | 4         | Estimated cover of Macrophytes on the transect       |
| Cover_Woody             | Y        | Number     | NA         | 0       | 0, 1, 2, 3, 4                                 | 0         | 4         | Estimated cover of Woody Debris on the transect      |
| Cover_Brush             | Y        | Number     | NA         | 0       | 0, 1, 2, 3, 4                                 | 0         | 4         | Estimated cover of Brush on the transect             |
| Cover_Tree              | Y        | Number     | NA         | 0       | 0, 1, 2, 3, 4                                 | 0         | 4         | Estimated cover of Live Trees and Roots on the       |

|                     |   |        |    |    |               |    |     |                                                                                     |
|---------------------|---|--------|----|----|---------------|----|-----|-------------------------------------------------------------------------------------|
|                     |   |        |    |    |               |    |     | transect                                                                            |
| Cover_Overhang      | Y | Number | NA | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated cover of Overhanging Vegetation on the transect                           |
| Cover_Undercut      | Y | Number | NA | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated cover of Undercut Bank on the transect                                    |
| Cover_Boulders      | Y | Number | NA | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated cover of Boulders on the transect                                         |
| Cover_Art_Sub       | Y | Number | NA | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated cover of Artificial Substrate on the transect                             |
| Canopy_CenUp        | Y | Number | NA | 0  | NA            | 0  | 17  | Spherical densiometer reading                                                       |
| Canopy_CenL         | Y | Number | NA | 0  | NA            | 0  | 17  | Spherical densiometer reading                                                       |
| Canopy_CenDwn       | Y | Number | NA | 0  | NA            | 0  | 17  | Spherical densiometer reading                                                       |
| Canopy_CenR         | Y | Number | NA | 0  | NA            | 0  | 17  | Spherical densiometer reading                                                       |
| Canopy_Left         | Y | Number | NA | 0  | NA            | 0  | 17  | Spherical densiometer reading                                                       |
| Canopy_Right        | Y | Number | NA | 0  | NA            | 0  | 17  | Spherical densiometer reading                                                       |
| Bank_Angle_Left     | Y | Number | NA | 0  | NA            | 0  | 360 | Angle in degrees                                                                    |
| Bank_Angle_Right    | Y | Number | NA | 0  | NA            | 0  | 360 | Angle in degrees                                                                    |
| Bank_Undercut_Left  | Y | Number | NA | 1  | NA            | 0  | NA  | Undercut distance                                                                   |
| Bank_Undercut_Right | Y | Number | NA | 1  | NA            | 0  | NA  | Undercut distance                                                                   |
| Bank_Wetted         | Y | Number | NA | 1  | NA            | 0  | NA  | Wetted width distance                                                               |
| Bank_Bar            | Y | Number | NA | 1  | NA            | 0  | NA  | Width of bars (if any)                                                              |
| Bank_BF_Width       | Y | Number | NA | 1  | NA            | 0  | NA  | Bankfull width                                                                      |
| Bank_BF_Height      | Y | Number | NA | 1  | NA            | 0  | NA  | Bankfull height                                                                     |
| Bank_Incised        | Y | Number | NA | 1  | NA            | 0  | NA  | Height of incision (if any)                                                         |
| RipCan_Type_Left    | Y | Text   | 1  | NA | D, C, E, M, N | NA | NA  | Dominant vegetation type in the canopy layer on the left side of the stream.        |
| RipCan_Type_Right   | Y | Text   | 1  | NA | D, C, E, M, N | NA | NA  | Dominant vegetation type in the canopy layer on the right side of the stream.       |
| RipCan_Big_Left     | Y | Number | 1  | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated density of large trees (>0.3 meters DBH) on the left side of the stream.  |
| RipCan_Big_Right    | Y | Number | 1  | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated density of large trees (>0.3 meters DBH) on the right side of the stream. |
| RipCan_Small_Left   | Y | Number | 1  | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated density of small trees (<0.3 meters DBH) on the left side of the stream.  |
| RipCan_Small_Right  | Y | Number | 1  | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated density of small trees (<0.3 meters DBH) on the right side of the stream. |
| RipUnd_Type_Left    | Y | Text   | 1  | NA | D, C, E, M, N | NA | NA  | Dominant vegetation type in the understory layer on the left side of the stream.    |
| RipUnd_Type_Right   | Y | Text   | 1  | NA | D, C, E, M, N | NA | NA  | Dominant vegetation type in the understory layer on the right side of the stream.   |
| RipUnd_Wood_Left    | Y | Number | 1  | 0  | 0, 1, 2, 3, 4 | 0  | 4   | Estimated density of woody shrubs and sapling on the left side of the stream.       |

|                     |   |        |   |    |               |    |    |                                                                                                                      |
|---------------------|---|--------|---|----|---------------|----|----|----------------------------------------------------------------------------------------------------------------------|
| RipUnd_Wood_Right   | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of woody shrubs and sapling on the right side of the stream.                                       |
| RipUnd_Non_Left     | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of non-woody herbs, grasses and forbs on the left side of the stream.                              |
| RipUnd_Non_Right    | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of non-woody herbs, grasses and forbs on the right side of the stream.                             |
| RipGnd_Wood_Left    | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of woody shrubs and sapling on the left side of the stream that represent ground cover.            |
| RipGnd_Wood_Right   | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of woody shrubs and sapling on the right side of the stream that represent ground cover.           |
| RipGnd_Non_Left     | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of non-woody herbs, grasses and forbs on the left side of the stream that represent ground cover.  |
| RipGnd_Non_Right    | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of non-woody herbs, grasses and forbs on the right side of the stream that represent ground cover. |
| RipGnd_Barren_Left  | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of barren areas, dirt, and duff on the left side of the stream.                                    |
| RipGnd_Barren_Right | Y | Number | 1 | 0  | 0, 1, 2, 3, 4 | 0  | 4  | Estimated density of barren areas, dirt, and duff on the right side of the stream.                                   |
| Human_Wall_Left     | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Wall_Right    | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Build_Left    | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Build_Right   | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Pave_Left     | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Pave_Right    | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Road_Left     | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Road_Right    | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Pipes_Left    | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Pipes_Right   | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Land_Left     | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream environment                                                              |
| Human_Land_Right    | Y | Text   | 1 | NA | O, P, C, B    | NA | NA | Influences that may be affecting the stream                                                                          |

|                     |   |      |   |    |            |    |    |                                                         |
|---------------------|---|------|---|----|------------|----|----|---------------------------------------------------------|
|                     |   |      |   |    |            |    |    | environment                                             |
| Human_Park_Left     | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |
| Human_Park_Right    | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |
| Human_Pasture_Left  | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |
| Human_Pasture_Right | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |
| Human_Log_Left      | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |
| Human_Log_Right     | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |
| Human_Mine_Left     | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |
| Human_Mine_Right    | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |
| Canopy_Percent      | Y | Text | 1 | NA | O, P, C, B | NA | NA | Influences that may be affecting the stream environment |

**tbl\_Reach\_Trees:** This table contains data about large trees along the stream reach.

| Field Name        | Required | Field Type | Field Size | Decimal | Enumerated Domain                                  | Min Value | Max Value | Field Description                                      |
|-------------------|----------|------------|------------|---------|----------------------------------------------------|-----------|-----------|--------------------------------------------------------|
| Data_ID           | M        | Text       | 50         | NA      | NA                                                 | NA        | NA        | Data row identifier                                    |
| Event_ID          | M        | Text       | 50         | NA      | NA                                                 | NA        | NA        | Links to the event                                     |
| Transect          | M        | Text       | 1          | NA      | A, B, C, D, E, F, G, H, I, J, K, Side Channel      | NA        | NA        | Transect where the measurement was taken               |
| Trees_Not_Visible | MA       | Yes / No   | NA         | NA      | Yes, No                                            | NA        | NA        | If checked, no large trees are visible                 |
| DBH_Left          | MA       | Text       | 15         | NA      | 0.0 - 0.1, 0.1 - 0.3, 0.3 - 0.75, 0.75 - 2.0, >2.0 | NA        | NA        | DBH of tree on left side of stream                     |
| DBH_Right         | MA       | Text       | 15         | NA      | 0.0 - 0.1, 0.1 - 0.3, 0.3 - 0.75, 0.75 - 2.0, >2.0 | NA        | NA        | DBH of tree on right side of stream                    |
| Height_Left       | MA       | Number     | NA         | 0       | NA                                                 | 0         | NA        | Height of tree on left side of stream                  |
| Height_Right      | MA       | Number     | NA         | 0       | NA                                                 | 0         | NA        | Height of tree on right side of stream                 |
| Distance_Left     | MA       | Number     | NA         | 0       | NA                                                 | 0         | NA        | Distance to tree on left side of stream                |
| Distance_Right    | MA       | Number     | NA         | 0       | NA                                                 | 0         | NA        | Distance to tree on right side of stream               |
| Type_Left         | MA       | Text       | 20         | NA      | Deciduous, Coniferous, Broadleaf Evergreen         | NA        | NA        | Broad category of tree type on left side of the stream |



|                   |    |          |     |    |                                                                                                                                                                                                                                                              |    |    |                                                            |
|-------------------|----|----------|-----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|------------------------------------------------------------|
| Type_Right        | MA | Text     | 20  | NA | Deciduous, Coniferous, Broadleaf Evergreen                                                                                                                                                                                                                   | NA | NA | Broad category of tree type on right side of the stream    |
| Taxon_Left        | MA | Text     | 150 | NA | Acacia / Mesquite, Alder / Birch, Ash, Maple / Boxelder, Oak, Poplar / Cottonwood, Sycamore, Willow, Unknown or Other Deciduous, Cedar / Cypress / Sequoia, Fir, Juniper. Pine, Spruce, Unknown or Other Conifer, Unknown or Other Broadleaf Evergreen, Snag | NA | NA | Detailed category of tree type on left side of the stream  |
| Taxon_Right       | MA | Text     | 150 | NA | Acacia / Mesquite, Alder / Birch, Ash, Maple / Boxelder, Oak, Poplar / Cottonwood, Sycamore, Willow, Unknown or Other Deciduous, Cedar / Cypress / Sequoia, Fir, Juniper. Pine, Spruce, Unknown or Other Conifer, Unknown or Other Broadleaf Evergreen, Snag | NA | NA | Detailed category of tree type on right side of the stream |
| Tree_Notes        | MA | Memo     | NA  | NA | NA                                                                                                                                                                                                                                                           | NA | NA | General notes about the tree observations                  |
| Invasive_RCGrass  | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Reed Canary Grass on the site.         |
| Invasive_SaltCed  | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Salt Cedar on the site.                |
| Invasive_HBlack   | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Himalayan Blackberry on the site.      |
| Invasive_GReed    | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is ???? on the site.                      |
| Invasive_Englvy   | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is English Ivy on the site.               |
| Invasive_CanThis  | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Canadian Thistle on the site.          |
| Invasive_Teasel   | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Reed Canary Grass on the site.         |
| Invasive_CBurd    | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is???? on the site.                       |
| Invasive_CHGrass  | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Chord Grass on the site.               |
| Invasive_MThis    | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Mountain Thistle on the site.          |
| Invasive_Spurge   | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Leafy Spurge on the site.              |
| Invasive_RusOlive | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is Russian Olive on the site.             |
| Invasive_None     | MA | Yes / No | NA  | NA | Yes, No                                                                                                                                                                                                                                                      | NA | NA | If checked there is no invasive species on the site.       |

**tbl\_Reach\_WChem:**

This table contains information about the water chemistry including temperature, periphyton information, and benthos information.

| Field Name          | Required | Field Type | Field Size | Decimal | Enumerated Domain               | Min Value | Max Value | Field Description                                                  |
|---------------------|----------|------------|------------|---------|---------------------------------|-----------|-----------|--------------------------------------------------------------------|
| Data_ID             | M        | Text       | 50         | NA      | NA                              | NA        | NA        | Data row identifier                                                |
| Event_ID            | M        | Text       | 50         | NA      | NA                              | NA        | NA        | Links to the event                                                 |
| Water_Chem_Lab      | MA       | Yes / No   | NA         | NA      | Yes, No                         | NA        | NA        | If checked, the water chemistry was collected                      |
| Chem_Lab_Trans      | MA       | Text       | 1          | NA      | A, B, C, D, E, F, G, H, I, J, K | NA        | NA        | Transect where the water chemistry was taken                       |
| Chem_Lab_Notes      | O        | Memo       | NA         | NA      | NA                              | NA        | NA        | General notes about the water chemistry                            |
| Air_Temp            | M        | Number     | NA         | 0       | NA                              | NA        | NA        | Temperature (Celsius) of the air when the water sample was taken   |
| Water_Temp          | M        | Number     | NA         | 0       | NA                              | NA        | NA        | Temperature (Celsius) of the water when the water sample was taken |
| Num_Benthos_Vials   | M        | Number     | NA         | 0       | NA                              | 0         | 11        | Number of vials used to collect the benthos sample                 |
| Benthos_Notes       | O        | Memo       | NA         | NA      | NA                              | NA        | NA        | General notes about the benthos sample                             |
| Periphyton_Scrapes  | M        | Number     | NA         | 0       | NA                              | 0         | 11        | Number of scrapes used to collect the periphyton sample.           |
| Periphyton_Comments | O        | Memo       | NA         | NA      | NA                              | NA        | NA        | General notes about the periphyton sample.                         |

**tbl\_Reach\_WD\_AboveBank:**

This table contains information about woody debris that is above the bank.

| Field Name      | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                                                                                                                       |
|-----------------|----------|------------|------------|---------|-------------------|-----------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Data_ID         | M        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                                                                                                                     |
| Event_ID        | M        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                                                                                                                      |
| ABF_15_0103_A-B | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect A and B |
| ABF_15_0103_B-C | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect B and C |
| ABF_15_0103_C-D | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect C and D |

|                 |   |        |    |   |    |   |    |                                                                                                                                         |
|-----------------|---|--------|----|---|----|---|----|-----------------------------------------------------------------------------------------------------------------------------------------|
| ABF_15_0103_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect D and E |
| ABF_15_0103_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect E and F |
| ABF_15_0103_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect F and G |
| ABF_15_0103_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect G and H |
| ABF_15_0103_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect H and I |
| ABF_15_0103_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect I and J |
| ABF_15_0103_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect J and K |
| ABF_15_0306_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect A and B |
| ABF_15_0306_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect B and C |
| ABF_15_0306_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect C and D |
| ABF_15_0306_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect D and E |
| ABF_15_0306_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect E and F |
| ABF_15_0306_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect F and G |

|                 |   |        |    |   |    |   |    |                                                                                                                                         |
|-----------------|---|--------|----|---|----|---|----|-----------------------------------------------------------------------------------------------------------------------------------------|
| ABF_15_0306_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect G and H |
| ABF_15_0306_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect H and I |
| ABF_15_0306_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect I and J |
| ABF_15_0306_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect J and K |
| ABF_15_0608_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect A and B |
| ABF_15_0608_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect B and C |
| ABF_15_0608_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect C and D |
| ABF_15_0608_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect D and E |
| ABF_15_0608_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect E and F |
| ABF_15_0608_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect F and G |
| ABF_15_0608_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect G and H |
| ABF_15_0608_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect H and I |
| ABF_15_0608_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect I and J |

|                  |   |        |    |   |    |   |    |                                                                                                                                            |
|------------------|---|--------|----|---|----|---|----|--------------------------------------------------------------------------------------------------------------------------------------------|
| ABF_15_0608_J-K  | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect J and K    |
| ABF_15_08_A-B    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect A and B                 |
| ABF_15_08_B-C    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect B and C                 |
| ABF_15_08_C-D    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect C and D                 |
| ABF_15_08_D-E    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect D and E                 |
| ABF_15_08_E-F    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect E and F                 |
| ABF_15_08_F-G    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect F and G                 |
| ABF_15_08_G-H    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect G and H                 |
| ABF_15_08_H-I    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect H and I                 |
| ABF_15_08_I-J    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect I and J                 |
| ABF_15_08_J-K    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, >15 m in length, has a diameter >0.8, and is in between transect J and K                 |
| ABF_515_0103_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect A and B |
| ABF_515_0103_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect B and C |

|                  |   |        |    |   |    |   |    |                                                                                                                                            |
|------------------|---|--------|----|---|----|---|----|--------------------------------------------------------------------------------------------------------------------------------------------|
| ABF_515_0103_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect C and D |
| ABF_515_0103_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect D and E |
| ABF_515_0103_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect E and F |
| ABF_515_0103_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect F and G |
| ABF_515_0103_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect G and H |
| ABF_515_0103_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect H and I |
| ABF_515_0103_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 in length, has a diameter between 0.1 - 0.3, and is in between transect I and J   |
| ABF_515_0103_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 in length, has a diameter between 0.1 - 0.3, and is in between transect J and K   |
| ABF_515_0306_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect A and B |
| ABF_515_0306_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect B and C |
| ABF_515_0306_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect C and D |
| ABF_515_0306_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect D and E |
| ABF_515_0306_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect E and F |

|                  |   |        |    |   |    |   |    |                                                                                                                                            |
|------------------|---|--------|----|---|----|---|----|--------------------------------------------------------------------------------------------------------------------------------------------|
| ABF_515_0306_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect F and G |
| ABF_515_0306_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect G and H |
| ABF_515_0306_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect H and I |
| ABF_515_0306_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect I and J |
| ABF_515_0306_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect J and K |
| ABF_515_0608_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect A and B |
| ABF_515_0608_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect B and C |
| ABF_515_0608_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect C and D |
| ABF_515_0608_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect D and E |
| ABF_515_0608_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect E and F |
| ABF_515_0608_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect F and G |
| ABF_515_0608_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect G and H |
| ABF_515_0608_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect H and I |

|                  |   |        |    |   |    |   |    |                                                                                                                                             |
|------------------|---|--------|----|---|----|---|----|---------------------------------------------------------------------------------------------------------------------------------------------|
| ABF_515_0608_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect I and J  |
| ABF_515_0608_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect J and K  |
| ABF_515_08_A-B   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect A and B               |
| ABF_515_08_B-C   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect B and C               |
| ABF_515_08_C-D   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect C and D               |
| ABF_515_08_D-E   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect D and E               |
| ABF_515_08_E-F   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect E and F               |
| ABF_515_08_F-G   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect F and G               |
| ABF_515_08_G-H   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect G and H               |
| ABF_515_08_H-I   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect H and I               |
| ABF_515_08_I-J   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect I and J               |
| ABF_515_08_J-K   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect J and K               |
| ABF_155_0103_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect A and B |



|                  |   |        |    |   |    |   |    |                                                                                                                                             |
|------------------|---|--------|----|---|----|---|----|---------------------------------------------------------------------------------------------------------------------------------------------|
| ABF_155_0103_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect B and C |
| ABF_155_0103_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect C and D |
| ABF_155_0103_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect D and E |
| ABF_155_0103_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect E and F |
| ABF_155_0103_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect F and G |
| ABF_155_0103_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect G and H |
| ABF_155_0103_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect H and I |
| ABF_155_0103_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect I and J |
| ABF_155_0103_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect J and K |
| ABF_155_0306_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect A and B |
| ABF_155_0306_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect B and C |
| ABF_155_0306_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect C and D |
| ABF_155_0306_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect D and E |

|                  |   |        |    |   |    |   |    |                                                                                                                                             |
|------------------|---|--------|----|---|----|---|----|---------------------------------------------------------------------------------------------------------------------------------------------|
| ABF_155_0306_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect E and F |
| ABF_155_0306_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect F and G |
| ABF_155_0306_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect G and H |
| ABF_155_0306_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect H and I |
| ABF_155_0306_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect I and J |
| ABF_155_0306_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect J and K |
| ABF_155_0608_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect A and B |
| ABF_155_0608_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect B and C |
| ABF_155_0608_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect C and D |
| ABF_155_0608_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect D and E |
| ABF_155_0608_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect E and F |
| ABF_155_0608_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect F and G |
| ABF_155_0608_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect G and H |

|                  |   |        |    |   |    |   |    |                                                                                                                                             |
|------------------|---|--------|----|---|----|---|----|---------------------------------------------------------------------------------------------------------------------------------------------|
| ABF_155_0608_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect H and I |
| ABF_155_0608_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect I and J |
| ABF_155_0608_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect J and K |
| ABF_155_08_A-B   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect A and B              |
| ABF_155_08_B-C   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect B and C              |
| ABF_155_08_C-D   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect C and D              |
| ABF_155_08_D-E   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect D and E              |
| ABF_155_08_E-F   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect E and F              |
| ABF_155_08_F-G   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect F and G              |
| ABF_155_08_G-H   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect G and H              |
| ABF_155_08_H-I   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect H and I              |
| ABF_155_08_I-J   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect I and J              |
| ABF_155_08_J-K   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is above bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect J and K              |

**tbl\_Reach\_WD\_bankfull:** This table contains information about woody debris that is all or part of the bankfull.

| Field Name     | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                                                                                                                                |
|----------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Data_ID        | M        | Text       | 50         | NA      | NA                | NA        | NA        | Data row identifier                                                                                                                              |
| Event_ID       | M        | Text       | 50         | NA      | NA                | NA        | NA        | Links to the event                                                                                                                               |
| BF_15_0103_A-B | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect A and B |
| BF_15_0103_B-C | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect B and C |
| BF_15_0103_C-D | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect C and D |
| BF_15_0103_D-E | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect D and E |
| BF_15_0103_E-F | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect E and F |
| BF_15_0103_F-G | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect F and G |
| BF_15_0103_G-H | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect G and H |
| BF_15_0103_H-I | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect H and I |
| BF_15_0103_I-J | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect I and J |
| BF_15_0103_J-K | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.1 - 0.3, and is in between transect J and K |
| BF_15_0306_A-B | M        | Number     | NA         | 0       | NA                | 0         | NA        | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect A and B |

|                |   |        |    |   |    |   |    |                                                                                                                                                  |
|----------------|---|--------|----|---|----|---|----|--------------------------------------------------------------------------------------------------------------------------------------------------|
| BF_15_0306_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect B and C |
| BF_15_0306_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect C and D |
| BF_15_0306_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect D and E |
| BF_15_0306_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect E and F |
| BF_15_0306_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect F and G |
| BF_15_0306_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect G and H |
| BF_15_0306_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect H and I |
| BF_15_0306_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect I and J |
| BF_15_0306_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.3 - 0.6, and is in between transect J and K |
| BF_15_0608_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect A and B |
| BF_15_0608_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect B and C |
| BF_15_0608_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect C and D |
| BF_15_0608_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect D and E |

|                |   |        |    |   |    |   |    |                                                                                                                                                  |
|----------------|---|--------|----|---|----|---|----|--------------------------------------------------------------------------------------------------------------------------------------------------|
| BF_15_0608_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect E and F |
| BF_15_0608_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect F and G |
| BF_15_0608_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect G and H |
| BF_15_0608_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect H and I |
| BF_15_0608_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect I and J |
| BF_15_0608_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter between 0.6 - 0.8, and is in between transect J and K |
| BF_15_08_A-B   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect A and B              |
| BF_15_08_B-C   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect B and C              |
| BF_15_08_C-D   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect C and D              |
| BF_15_08_D-E   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect D and E              |
| BF_15_08_E-F   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect E and F              |
| BF_15_08_F-G   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect F and G              |
| BF_15_08_G-H   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect G and H              |

|                 |   |        |    |   |    |   |    |                                                                                                                                                     |
|-----------------|---|--------|----|---|----|---|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| BF_15_08_H-I    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect H and I                 |
| BF_15_08_I-J    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect I and J                 |
| BF_15_08_J-K    | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, >15 m in length, has a diameter >0.8, and is in between transect J and K                 |
| BF_515_0103_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect A and B |
| BF_515_0103_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect B and C |
| BF_515_0103_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect C and D |
| BF_515_0103_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect D and E |
| BF_515_0103_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect E and F |
| BF_515_0103_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect F and G |
| BF_515_0103_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect G and H |
| BF_515_0103_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.1 - 0.3, and is in between transect H and I |
| BF_515_0103_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 in length, has a diameter between 0.1 - 0.3, and is in between transect I and J   |
| BF_515_0103_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 in length, has a diameter between 0.1 - 0.3, and is in between transect J and K   |

|                 |   |        |    |   |    |   |    |                                                                                                                                                     |
|-----------------|---|--------|----|---|----|---|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| BF_515_0306_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect A and B |
| BF_515_0306_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect B and C |
| BF_515_0306_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect C and D |
| BF_515_0306_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect D and E |
| BF_515_0306_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect E and F |
| BF_515_0306_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect F and G |
| BF_515_0306_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect G and H |
| BF_515_0306_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect H and I |
| BF_515_0306_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect I and J |
| BF_515_0306_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.3 - 0.6, and is in between transect J and K |
| BF_515_0608_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect A and B |
| BF_515_0608_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect B and C |
| BF_515_0608_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect C and D |



|                 |   |        |    |   |    |   |    |                                                                                                                                                     |
|-----------------|---|--------|----|---|----|---|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| BF_515_0608_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect D and E |
| BF_515_0608_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect E and F |
| BF_515_0608_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect F and G |
| BF_515_0608_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect G and H |
| BF_515_0608_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect H and I |
| BF_515_0608_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect I and J |
| BF_515_0608_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter between 0.6 - 0.8, and is in between transect J and K |
| BF_515_08_A-B   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect A and B              |
| BF_515_08_B-C   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect B and C              |
| BF_515_08_C-D   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect C and D              |
| BF_515_08_D-E   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect D and E              |
| BF_515_08_E-F   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect E and F              |
| BF_515_08_F-G   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect F and G              |

|                 |   |        |    |   |    |   |    |                                                                                                                                                      |
|-----------------|---|--------|----|---|----|---|----|------------------------------------------------------------------------------------------------------------------------------------------------------|
| BF_515_08_G-H   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect G and H               |
| BF_515_08_H-I   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect H and I               |
| BF_515_08_I-J   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect I and J               |
| BF_515_08_J-K   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 5 - 15 m in length, has a diameter >0.8, and is in between transect J and K               |
| BF_155_0103_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect A and B |
| BF_155_0103_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect B and C |
| BF_155_0103_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect C and D |
| BF_155_0103_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect D and E |
| BF_155_0103_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect E and F |
| BF_155_0103_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect F and G |
| BF_155_0103_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect G and H |
| BF_155_0103_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect H and I |
| BF_155_0103_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect I and J |

|                 |   |        |    |   |    |   |    |                                                                                                                                                      |
|-----------------|---|--------|----|---|----|---|----|------------------------------------------------------------------------------------------------------------------------------------------------------|
| BF_155_0103_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.1 - 0.3, and is in between transect J and K |
| BF_155_0306_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect A and B |
| BF_155_0306_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect B and C |
| BF_155_0306_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect C and D |
| BF_155_0306_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect D and E |
| BF_155_0306_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect E and F |
| BF_155_0306_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect F and G |
| BF_155_0306_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect G and H |
| BF_155_0306_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect H and I |
| BF_155_0306_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect I and J |
| BF_155_0306_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.3 - 0.6, and is in between transect J and K |
| BF_155_0608_A-B | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect A and B |
| BF_155_0608_B-C | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect B and C |

|                 |   |        |    |   |    |   |    |                                                                                                                                                      |
|-----------------|---|--------|----|---|----|---|----|------------------------------------------------------------------------------------------------------------------------------------------------------|
| BF_155_0608_C-D | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect C and D |
| BF_155_0608_D-E | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect D and E |
| BF_155_0608_E-F | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect E and F |
| BF_155_0608_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect F and G |
| BF_155_0608_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect G and H |
| BF_155_0608_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect H and I |
| BF_155_0608_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect I and J |
| BF_155_0608_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter between 0.6 - 0.8, and is in between transect J and K |
| BF_155_08_A-B   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect A and B              |
| BF_155_08_B-C   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect B and C              |
| BF_155_08_C-D   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect C and D              |
| BF_155_08_D-E   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect D and E              |
| BF_155_08_E-F   | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect E and F              |

|               |   |        |    |   |    |   |    |                                                                                                                                         |
|---------------|---|--------|----|---|----|---|----|-----------------------------------------------------------------------------------------------------------------------------------------|
| BF_155_08_F-G | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect F and G |
| BF_155_08_G-H | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect G and H |
| BF_155_08_H-I | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect H and I |
| BF_155_08_I-J | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect I and J |
| BF_155_08_J-K | M | Number | NA | 0 | NA | 0 | NA | Count of the woody debris that is all or part of bankfull, 1.5 - 5 m in length, has a diameter >0.8, and is in between transect J and K |

**tbl\_Sites:** This table contains the general information about the survey area.

| Field Name      | Required | Field Type | Field Size | Decimal | Enumerated Domain                  | Min Value | Max Value | Field Description                                      |
|-----------------|----------|------------|------------|---------|------------------------------------|-----------|-----------|--------------------------------------------------------|
| Site_ID         | Y        | Text       | 50         | NA      | NA                                 | NA        | NA        | Unique site identifier                                 |
| Site_Name       | Y        | Text       | 100        | NA      | See list of streams for each park. | NA        | NA        | Name of the 3 kilometer segment                        |
| Site_Desc       | Y        | Text       | 9          | NA      | Stream                             | NA        | NA        | Category of the 3 kilometer segment                    |
| Unit_Code       | Y        | Text       | 4          | NA      | CRLA, LABE, LAVO, ORCA, REDW, WHIS | NA        | NA        | Park where the site occurs                             |
| Site_Notes      | N        | Memo       | NA         | NA      | NA                                 | NA        | NA        | General notes about the segment                        |
| GIS_Location_ID | Y        | Text       | 50         | NA      | NA                                 | NA        | NA        | Unique ID that links the site to the GIS Feature Class |

**tbl\_Contacts:** This table provides the contact information for people working on this project

| Field Name     | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                          |
|----------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------------|
| Contact_ID     | Y        | Text       | 50         | NA      |                   |           |           | Unique ID for each individual              |
| Last_Name      | Y        | Text       | 50         | NA      |                   |           |           | Last name of the individual                |
| First_Name     | Y        | Text       | 50         | NA      |                   |           |           | First name of the individual               |
| Middle_Init    | N        | Text       | 1          | NA      |                   |           |           | Middle initial of the individual           |
| Organization   | Y        | Text       | 20         | NA      |                   |           |           | Organization the individual is working for |
| Position_Title | Y        | Text       | 20         | NA      |                   |           |           | Positions they hold on the project         |

|                |   |        |     |    |                                               |  |  |                                 |
|----------------|---|--------|-----|----|-----------------------------------------------|--|--|---------------------------------|
| Address_Type   | Y | Text   | 25  | NA | Physical,<br>Mailing, Physical<br>and Mailing |  |  | Type of address entered         |
| Address        | Y | Text   | 255 | NA |                                               |  |  | Their contact address           |
| Address2       | N | Text   | 255 | NA |                                               |  |  | Their contact address           |
| City           | Y | Text   | 50  | NA |                                               |  |  | City where they live            |
| State_Code     | Y | Text   | 2   | NA |                                               |  |  | State where they live           |
| Zip_Code       | Y | Number | 5   | NA |                                               |  |  | Zipcode where they live         |
| Country        | Y | Text   | 3   | NA |                                               |  |  | Country where they live         |
| Email_Address  | N | Text   | 100 | NA |                                               |  |  | Email address of the individual |
| Work_Phone     | Y | Text   | 14  | NA |                                               |  |  | Work phone number               |
| Work_Extension | N | Text   | 10  | NA |                                               |  |  | Work extension number           |
| Contact_Notes  | N | Memo   | NA  | NA |                                               |  |  | General information             |

**tlu\_Enumeration:** This table provides the contact information for people working on this project

| Field Name       | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                    |
|------------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------|
| Enum_Code        | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Code for lookup values               |
| Enum_Description | N        | Memo       | NA         | NA      | NA                | NA        | NA        | Lookup value description             |
| Enum_Group       | Y        | Text       | 50         | NA      | NA                | NA        | NA        | Category for lookup value            |
| Sort_Order       | Y        | Number     | NA         | 0       | NA                | NA        | NA        | Order in which to sort lookup values |

**tbl\_Reports:** This table contains the information needed to make the reporting tool for this database function.

| Field Name | Required | Field Type | Field Size | Decimal | Enumerated Domain | Min Value | Max Value | Field Description                          |
|------------|----------|------------|------------|---------|-------------------|-----------|-----------|--------------------------------------------|
| Seq        | Y        | Number     | NA         | 0       | NA                | NA        | NA        | A sequence so you can sort the reports     |
| RptTitle   | Y        | Text       | 100        | NA      | NA                | NA        | NA        | Title of the report, analysis, or raw data |
| RptName    | Y        | Text       | 100        | NA      | NA                | NA        | NA        | Name of the report, analysis, or raw data  |
| DateRange  | Y        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Makes the date field visible               |
| SelPark    | Y        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Makes the park field visible               |
| SelSegment | Y        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Makes the segment field visible            |
| selSegType | Y        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Makes the segment type field visible       |
| SelSpecies | Y        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Makes the species field visible            |
| SelLocType | Y        | Yes / No   | NA         | NA      | Yes, No           | NA        | NA        | Makes the location type field visible      |